

13 July 80

MR & MRS THOMAS O CLARK
15000 E CASTLE
WICHITA KS 67230

Dear Mr. Fabric

I called your home several weeks ago about obtaining a testing of the Blue Ram program as my CI (cassette interface) doesn't work. You said you'd send me a copy for a \$1. I haven't received it yet but aside from that I thought that you or your repair team? (Vol 3, page 46, last para) might help with my problem.

I can't input data from the tape recorder. I've spent so much time trying to resolve the problem that I could probably write a tutorial on how the CI works

Most of what follows is based on observation with 2 channel scope of the various signals on the CI and Arcade

1. The Arcade outputs a series of short duration positive pulses during the record mode. Signal is available at Port 3 enable signal (U19 pin 29 in Arcade)
2. These pulses cause the CI to generate a 1 or 0 as required for 1/300 second. The Arcade verifies the desired binary value is created by observing the signal which is fed back to it via the port 3 joystick down position (U19 pin 3)
3. Regardless of what is sent to the recorder the first bit seems to be a space bit (0) followed by binary bits 0 thru 7 of the character (reference chart on p 16, Vol 1). There appears to be 1 or more mark bits (1) following bit 7

- 4 A frequency selector inside the CI selects 1200 Hz or 2400 Hz depending on the 0 or 1 binary value respectively and sends the selected frequency on to the tape recorder.
- 5 So far so good. Next, I can play back the information from recorder to the CI. The CI recovers the data beautifully. I recorded $\frac{1}{2}$ hour of just one character so I could see the repetitive action. The recovered data signal at U5 pin 14 (ref ~~test~~ Vol 1, p 20) is present along with the clock signal at U5 pin 9. I can see the clock signal (300 Hz) at the ADDR chip U17 pin 29 so I know it's getting there.
- 6 The problem comes when I type : INPUT to transfer data from the recorder to the Arcade. Nothing happens. I'm guessing that during this mode of operation the Arcade looks at the clock signal at the light pin input. When the clock goes high in the middle of the playback data slot a working Arcade would probably pulse the Port 3 enable line. This would let the data signal at U15, pin 14 pass through the U5 gate to U5, pin 13 into the Arcade at the Port 3 up position.

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X Data is not getting back thru U5 between pins 14 ~~to~~ to 13 because there is no positive pulse at U1 pin 4.

7 When I bought the CI the Arcade worked. I could write and read data to and from the tape recorder. I think the problem is a bad ADDR chip U17. I can see I've got several options:

- A Buy a new chip $\approx \$20-30$
- B Buy a used board to get chip $= \$30$
- C Buy a good board to get good chip $= \$70$
- D Have Bally fix it $= \$50$ minimum
- E Forget the whole thing $= \$0$

If you can offer any suggestions I'd surely appreciate it. Specifically, am I on the right track, or am I totally confused?

Hope to hear from you —

Tom Clark